

Application No. 10/786,547
Amendment dated December 28, 2005
Reply to Office Action of September 30, 2005

Docket No.: 21994-00067-US

REMARKS

In view of the above amendment, applicant believes the pending application is in condition for allowance.

The Office Action and prior art relied upon have been carefully considered. In an effort to expedite the prosecution, the claims have been amended to address the indefiniteness pointed out by the Examiner so that the claims now clearly express the invention. Accordingly, further rejection on the ground of 35 U.S.C. § 112 second paragraph is not anticipated.

Applicant notes the indicated allowability of claims 1-5 with appreciation. Claim 6 was rejected under 35 U.S.C. §103(a) as being unpatentable over Grunenfelder (US 5,399,253).

According to the present invention, the inventive concept of claim 6 relates to a yoke-type permanent magnet (permanent magnet assembly) 72, which is comprised of a base 8, a first (yoke-type) permanent magnet 92 that is allocated in the middle of the base 8 and a second (yoke-type) permanent magnet 102.

In the permanent magnet assembly 72, the N-pole of the first permanent magnet 92 and the S-pole of the second permanent magnet 102 face toward a target 3 respectively (see page 9, lines 19-23). Further, magnetic field strength of the second permanent magnet 102 is weaker than magnetic field strength of the first permanent magnet 92. Accordingly, as shown in Figs. 7 and 8, magnetic field generated by the permanent magnet assembly 72 is distributed so as to expand from the top surface of the first permanent magnet 92 to the top surface of the second permanent magnet 102 (see page 9, line 28 to page 10, line 5).

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In the case of Franks (GB 2 241 710), the specification discloses that the total strength of the peripheral magnet 13 is greater than the strength of the magnet induced at the top of the center pin of the mild steel base core 12 (see page 4, lines 1-4). Further, as shown in FIG. 4, the N-pole of the peripheral magnet 13 and the S-pole of the center pin of the mild steel base core 12 face toward the target respectively. Accordingly, the configuration of the magnetron according to Franks is different from that of the magnetron sputtering apparatus according to the present invention disclosed in claim 6.

In addition thereto, the magnetic field generated by the magnetron of Franks is distributed from the outside (peripheral magnet 13) to the inside (mild steel base core 12) of the magnetron or from the peripheral magnet 13 to the lower disc 14, so that the magnetron according to Franks is completely different from the permanent magnet assembly according to the present invention.

In the case of Grunenfelder (U.S. Patent 5,399,253), a magnetic pole of the first magnetic pole generating device 11, which is disposed in the outermost peripheral of the pole plate 12, is the N-pole, and the N-pole faces toward the target 1 (see FIGS. 3-4c). Thus, the configuration of the plasma generating device according to Grunenfelder is different from that of the magnetron sputtering apparatus according to the present invention.

In the case of Kobayashi et al. (U.S. Patent 5,439,574), as shown in FIG. 1, the S-pole of the center magnet and the N-pole of the peripheral magnet face toward the target 2 respectively in the permanent magnet assembly 3. Thus, the permanent magnet assembly 3 according to Kobayashi et al. is different from the permanent magnet assembly according to the present invention.

Claim 6 has been amended in order to clarify the points of inventiveness as discussed above.

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As an aid to the Examiner, the relationships between claims, embodiments and drawings are listed as follows:

Claim	Embodiment	Drawing(s)	Remarks
1	First	Figs. 1-4	
2	Sixth	Fig. 12	
3	Second	Figs. 7 and 8	
4	Fourth	Figs. 9 and 10	Wedge shaped member
5	Fifth	Fig. 11	Wedge shaped member
6	Third	(Figs. 7 and 8)	

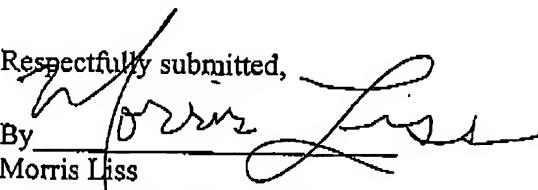
In view of the above, consideration and allowance are, therefore, respectfully solicited.

In the event the Examiner believes an interview might serve to advance the prosecution of this application in any way, the undersigned attorney is available at the telephone number noted below.

The Director is hereby authorized to charge any fees, or credit any overpayment, associated with this communication, including any extension fees, to CBLH Deposit Account No. 22-0185, under Order No. 21994-00067-US from which the undersigned is authorized to draw.

Dated: December 28, 2005

Respectfully submitted,

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